CLAIMS

What is Claimed is:

1.   A Rake receiver, operable with a plurality of fingers, each finger for
2 demodulating an incoming signal at an offset and responsive to time-tracking
commands for adjusting the offset, comprising:
4   a motion limiter for receiving time-tracking commands for a plurality of
fingers, suppressing those commands which would adjust the offset of a finger
6 outside motion limits set for that finger, and delivering the unsuppressed time-
tracking commands to the plurality of fingers.

2.   The Rake receiver of claim 1, further comprising a motion limit
2 table for storing the plurality of motion limits corresponding to the plurality of
fingers.

3.   A mobile station, including a Rake receiver, operable with a
2 plurality of fingers, each finger for demodulating an incoming signal at an offset
and responsive to time-tracking commands for adjusting the offset, comprising:
4   a motion limiter for receiving time-tracking commands for a plurality of fingers,
suppressing those commands which would adjust the offset of a finger outside motion
6 limits set for that finger, and delivering the unsuppressed time-tracking commands to
the plurality of fingers.

4.   A base station, including a Rake receiver, operable with a plurality of
2 fingers, each finger for demodulating an incoming signal at an offset and responsive to
time-tracking commands for adjusting the offset, comprising:
4   a motion limiter for receiving time-tracking commands for a plurality of fingers,
suppressing those commands which would adjust the offset of a finger outside motion
6 limits set for that finger, and delivering the unsuppressed time-tracking commands to
the plurality of fingers.

5.   A communication system, including a Rake receiver, operable with a
2 plurality of fingers, each finger for demodulating an incoming signal at an offset and
responsive to time-tracking commands for adjusting the offset, comprising:

4   a motion limiter for receiving time-tracking commands for a plurality of fingers, suppressing those commands which would adjust the offset of a finger outside motion

6   limits set for that finger, and delivering the unsuppressed time-tracking commands to the plurality of fingers.

6.   A method of time-tracking a plurality of fingers in a Rake receiver

2   comprising:
restricting each finger from tracking outside motion limits for that finger.

7.   The method of claim 6, wherein the motion limits include an advance

2   limit.

8.   The method of claim 6, wherein the motion limits include a retard limit.

9.   The method of claim 6, further comprising determining the motion limits

2   for a finger in accordance with the position of one or more adjacent fingers.

10.   The method of claim 9, wherein an advance limit is set to a position

2   approximately half the distance between the finger and the nearest finger ahead in time.

11.   The method of claim 9, wherein a retard limit is set to a position

2   approximately half the distance between the finger and the nearest finger behind in time.

12.   The method of claim 9, wherein no advance limit is set for a finger with

2   no adjacent finger ahead in time within a pre-determined offset limit.

13.   The method of claim 9, wherein no retard limit is set for a finger with no

2   adjacent finger behind in time within a pre-determined offset limit.

14.   The method of claim 6, wherein the restricting is intercepting advance

2   commands when the advance motion limit is met and intercepting retard commands when the retard limit is met.

15.   The method of claim 6, wherein the motion limits are regenerated

2   periodically.

16.   The method of claim 6, wherein the motion limits are determined when

2   finger assignment is performed.

17.   The method of claim 6, wherein the motion limits are regenerated

2   subsequent to the issuance of a time-tracking command.

18.   The method of claim 6, wherein the motion limits for a finger are

2   regenerated when a time-tracking command is issued to the finger.

19.   The method of claim 6, wherein the motion limits for a first finger

2   adjacent to a second finger are regenerated when a time-tracking command is issued to

the second finger.

20.   A method of time-tracking a plurality of fingers, each finger having an
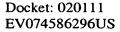
2   advance limit and a retard limit, comprising:

advancing the retard limit of a first finger adjacent to and ahead of a second

4   finger and the advance limit of a third finger adjacent to and behind the second finger

when an advance command is delivered to the second finger; and

6   retarding the retard limit of the first finger and the advance limit of the third

finger when a retard command is delivered to the second finger.

21.   The method of claim 20, further comprising suppressing the advance and

2   retard commands for the second finger when the commands would move the offset of

the second finger outside the advance or retard limit of the second finger.

22.   A method of time-tracking a plurality of fingers, each finger having an

2   advance limit, a retard limit, and a center position located approximately equidistant

from the finger's advance and retard limits, comprising:

4   advancing the advance and retard limits of a first finger when the first finger is

advanced past the center position and the advance limit of the first finger plus a pre-

6   determined guardband is less than the retard limit of a second finger ahead of and

adjacent to the first finger; and

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8   retarding the advance and retard limits of the first finger when the first finger is
retarded past the center position and the retard limit of the first finger minus a pre-

10   determined guardband is greater than the advance limit of a third finger behind and
adjacent to the first finger.

23.   The method of claim 22, further comprising advancing the advance and

2   retard limits of the third finger, subsequent to an advance of the advance and retard
limits of the first finger, when the third finger is advanced past its center position.

24.   The method of claim 22, further comprising retarding the advance and

2   retard limits of the second finger, subsequent to a retard of the advance and retard limits
of the first finger, when the second finger is retarded past its center position.

25.   The method of claim 22, wherein the advance and retard limits of the

2   first finger are advanced subsequent to an advance command to the first finger.

26.   The method of claim 22, wherein the advance and retard limits of the

2   first finger are retarded subsequent to a retard command to the first finger.

27.   Processor readable media operable to perform the following step:

2   restricting each of a plurality of fingers from tracking outside motion limits for
that finger.

28.   Processor readable media operable to perform the following steps:

2   advancing the retard limit of a first finger adjacent to and ahead of a second
finger and the advance limit of a third finger adjacent to and behind the second finger

4   when an advance command is delivered to the second finger; and
advancing the retard limit of the first finger and the advance limit of the third

6   finger when an advance command is delivered to the second finger.

29.   Processor readable media operable to perform the following steps:

2   advancing the advance and retard limits of a first finger when the first finger is
advanced past its center position and the advance limit of the first finger plus a pre-

4   determined guardband is less than the retard limit of a second finger ahead of and

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adjacent to the first finger; and

6   retarding the advance and retard limits of a first finger when the first finger is retarded past its center position and the retard limit of the first finger minus a pre-

8   determined guardband is greater than the advance limit of a third finger behind and adjacent to the first finger.

30.   A Rake receiver comprising:

2   means for restricting each of a plurality of fingers from tracking outside motion limits for that finger.

31.   A Rake receiver comprising:

2   means for advancing the retard limit of a first finger adjacent to and ahead of a second finger and the advance limit of a third finger adjacent to and behind the second

4   finger when an advance command is delivered to the second finger; and

        means for advancing the retard limit of the first finger and the advance limit of

6   the third finger when an advance command is delivered to the second finger.

32.   A Rake receiver comprising:

2   means for advancing the advance and retard limits of a first finger when the first finger is advanced past its center position and the advance limit of the first finger plus a

4   pre-determined guardband is less than the retard limit of a second finger ahead of and adjacent to the first finger; and

6   means for retarding the advance and retard limits of a first finger when the first finger is retarded past its center position and the retard limit of the first finger minus a

8   pre-determined guardband is greater than the advance limit of a third finger behind and adjacent to the first finger.